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(54) **Composition for the dyeing of human hair**

(57) Hair dyeing composition on the basis of an oxidation dyestuff precursor reacting with peroxide, comprising at least one developing and/or coupling substance selected from the group

3-morpholinophenol, 3-(N-hydroxyethyl amino)-phenol and/or 3-(N-hydroxypropyl amino)-phenol, and  
c) o-aminophenol and/or 4-chloro-2-aminophenol.

- a) 3-chloro-p-aminophenol and/or 2-chloro-p-aminophenol and
- b) 3-(N-methyl-N-hydroxyethyl amino)-phenol,

**EP 1 378 228 A1**

## Description

[0001] The present invention concerns a composition for the dyeing of human hair on the basis of an oxidation dyestuff precursor system reacting with peroxide which provides long-lasting, intensive colors either used as such, or which can be used to obtain further shades in combination with additional developing and/or coupling agents and which does not damage the hair even upon repeated application within short intervals.

[0002] The developing substances still most frequently used in hair dyeing compositions are 1,4-diaminobenzene (p-phenylenediamine) and 1-methyl-2,5-diaminobenzene (p-toluylenediamine). Although incorporation of these substances largely fulfills the user's color wishes, there are still shades that cannot be completely achieved by the use thereof.

[0003] Proposals have also been made to close this gap by the use of alternative developing substances. To a limited degree this is possible with the use of tetraaminopyrimidine or 2-(2,5-diaminophenyl)ethanol (see EP-B 400 330); however, it is then necessary to accept reduced color intensity in other shades.

A further satisfactory solution of this problem is disclosed in EP-A 615 743, with the use of 2-(2'-hydroxyethyl amino)-5-aminotoluene or the water-soluble salts thereof, as a component of oxidation hair dye compositions.

However, to the present it has not been possible to achieve strong colorations in the range of brown by this means.

[0004] The invention starts from the task of counteracting this deficiency and providing an oxidation dyestuff composition which achieves intensive, glossy colorations, especially in the range of brown, and which leaves the hair without damage even upon repeated application within short periods of time.

[0005] This task is solved when such a hair dyeing composition comprises an oxidation dyestuff system reacting with peroxide which is selected from a) 3-chloro-p-aminophenol and/or 2-chloro-p-aminophenol, b) 3-(N-methyl-N-hydroxyethyl amino)-phenol, 3-morpholinophenol, 3-(N-hydroxyethyl amino)-phenol and/or 3-(N-hydroxypropyl amino)-phenol and c) o-aminophenol and/or 4-chloro-2-aminophenol.

[0006] After oxidation with peroxide, use of these compositions on the basis of a customary carrier provides very expressive, intensive, long-lasting hair colorations, especially in the range of brown, which can be varied to achieve further shades by the addition of the respective further developing and coupling substances.

[0007] In addition to the named developing and coupling substances it is also possible to incorporate further substances of this type.

Further suitable coupling substances are, for example, 1-methoxy-2-amino-4-( $\beta$ -hydroxyethyl amino)benzene, 2-amino-3-hydroxypyridine, 3-amino-2-methylamino-6-methoxypyridine, resorcinol, 2-methyl resorcinol, 4-chlororesorcinol, 2-amino-4-chlorophenol, 1,3-diaminobenzene, 1,6-dihydroxynaphthalene, 1,7-dihydroxynaphthalene, p-phenylenediamine, p-toluylenediamine, 2,6-dimethyl-p-phenylenediamine, 2-hydroxymethyl-p-phenylenediamine, 2-hydroxyethyl-p-phenylenediamine, 2-n-propyl-p-phenylenediamine, 2-isopropyl-p-phenylenediamine, N-( $\beta$ -hydroxypropyl)-p-phenylenediamine, N,N-bis( $\beta$ -hydroxyethyl)-p-phenylenediamine, N-methoxyethyl-p-phenylenediamine and/or 5-chloro-2-hydroxyethyl-p-phenylenediamine or the water-soluble salts thereof.

The total concentration of the developing substances is customarily from 0.05 % to 5 %, preferably 0.1 % to 4 %, in particular 0.25 % to 0.5 % and 2.5 % to 3 % by weight, calculated to the total hair dyeing composition (excluding the oxidation agent), whereby these figures are always related to the proportion of free base; the preferred weight proportion of the developing substances to the additional developing and coupling substances ranges between about 1 : 8 to 8 : 1, preferably about 1 : 5 to 5 : 1, in particular 1 : 2 to 2 : 1.

[0008] In the hair dyeing compositions according to the invention, the coupling substance(s) as reaction partners of the developing substance(s) are present in approximately the same molecular proportions as the developing substances, i.e. in amounts from 0.05 % to 5.0 %, preferably 0.1 % to 4 %, in particular 0.5 % to 3 % by weight, calculated to the total composition (excluding the oxidizing agent), whereby these figures are always related to the proportion of free base.

[0009] If desired, the compositions according to the invention can also contain so-called shading agents for precise adjustment of the desired shade, in particular directacting dyestuffs.

[0010] Such shading agents are, for example, nitro dyestuffs such as 2-amino-4,6-dinitrophenol, 2-amino-4-nitrophenol, 2-amino-6-chloro-4-nitrophenol, etc., preferably in amounts from about 0.05 % to 2.5 %, in particular 0.1 % to 1 % by weight of the dyestuff composition (excluding the oxidizing agent).

[0011] The hair dyeing compositions according to the invention can comprise the basic substances and additives customarily found in such compositions, conditioning agents, etc., known as state of the art and described, for example, in the monography of K. Schrader, "Grundlagen und Rezepturen der Kosmetika", 2nd Ed. (Huthig Buch Verlag, Heidelberg, 1989), pp. 782 to 815. They can be prepared as solutions, creams, gels or also in the form of aerosol products; suitable carrier material compositions are known as state of the art.

[0012] For application, the oxidation dyestuff precursor is mixed with an oxidizing agent. The preferred oxidizing agent is hydrogen peroxide, for example in a concentration of 2 % to 6 % by weight.

[0013] However, the use of other peroxides such as urea peroxide and melamine peroxide is also possible.

# EP 1 378 228 A1

[0014] The pH-value of the ready-to-use hair dyeing composition, i.e. after mixing with peroxide, can be in a slightly acidic range, i.e. from 5.5 to 6.9, as well as in the neutral or alkaline range, i.e. between pH 7.1 and 10.

[0015] In the following, various Examples are used to illustrate the invention.

Carrier	
Stearyl alcohol	8.0 (% by wt.)
Coco fatty acid monoethanolamide	4.5
1,2-Propanediol mono/distearate	1.3
Coco fatty alcohol polyglycol ether	4.0
Sodium lauryl sulfate	1.0
Oleic acid	2.0
1,2-Propanediol	1.5
Na-EDTA	0.5
Sodium sulfite	1.0
Protein hydrolyzate	0.5
Ascorbic acid	0.2
Perfume	0.4
Ammonia, 25%	1.0
Ammonium chloride	0.5
Panthenol	0.8
Water	ad 100.00

[0016] The oxidation dyestuff combinations according to the invention were incorporated into this carrier, whereby the water content was reduced accordingly.

[0017] The colorations were carried out on wool patches and strands of bleached human hair by application of a 1:1 mixture of a dyestuff precursor and a 6 % hydrogen peroxide solution (pH-value of the mixture: 9.8) with twenty minutes processing at room temperature, subsequent rinsing and drying.

[0018] The following colorations were achieved:

## Example 1:

[0019]

0.80	(% by wt.)	3-Chloro-p-aminophenol HCl
0.36		3-(N-methyl-N-hydroxyethylamino)-phenol
0.24		o-Aminophenol
Coloration:		
	Beige-brown.	

## Example 2:

[0020]

0.80	(% by wt.)	3-Chloro-p-aminophenol HCl
0.40		3-Morpholinophenol
0.24		o-Aminophenol
Coloration:		
	Brown-rose.	

**Example 3:****[0021]**

0.80	(% by wt.)	3-Chloro-p-aminophenol HCl
0.34		3-(N-Hydroxyethyl amino)-phenol
0.24		o-Aminophenol
Coloration:		
	Hazelnut brown.	

**Example 4:****[0022]**

0.80	(% by wt.)	3-Chloro-p-aminophenol HCl
0.36		3-(N-Hydroxypropyl amino)-phenol
0.24		o-Aminophenol
Coloration:		
	Camel brown/gold-brown.	

**Claims**

1. Hair dyeing composition on the basis of an oxidation dyestuff precursor reacting with peroxide, comprising at least one developing and/or coupling substance selected from the group
  - a) 3-chloro-p-aminophenol and/or 2-chloro-p-aminophenol and
  - b) 3-(N-methyl-N-hydroxyethyl amino)-phenol, 3-morpholinophenol, 3-(N-hydroxyethyl amino)-phenol and/or 3-(N-hydroxypropyl amino)-phenol, and
  - c) o-aminophenol and/or 4-chloro-2-aminophenol.



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# EUROPEAN SEARCH REPORT

Application Number  
EP 03 01 2998

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 200 17 642 U (HENKEL KGAA) 21 December 2000 (2000-12-21) * the whole document *	1	A61K7/13
A	DE 100 51 034 A (HENKEL KGAA) 18 April 2002 (2002-04-18) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A61K
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>17 October 2003</b>	Examiner <b>Sierra Gonzalez, M</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 01 2998

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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17-10-2003

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82